UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER
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ART UNIT	PAPER NUMBER
2141	

DATE MAILED: 01/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on _07 October 2004_.

2a) ☒ This action is **FINAL**.   2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
   closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) _1-35,37-40 and 42-56_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) _1-35,37-40 and 42-56_ is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on _09 August 2000_ is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
      application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _(see attachments)_.

4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____ .

Detailed Action

1.   This Office Action is in response to the Amendment filed on 10/07/2004. Claims

1-6, 13, 19-24, 27-28, 30, 37, 42-52 have been amended. Claims 53-56 have been

added as new claims. Claims 1-35, 37-40 and 42-56 are presented for examination.

Claim Rejections - 35 USC § 102

2.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the
> United States before the invention thereof by the applicant for patent, or on an international application
> by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this
> title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act

of 1999 (AIPA) and the Intellectual Property and High Technology Technical

Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting

directly or indirectly from an international application filed before November 29, 2000.

Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior

to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

3.   **Claims 1, 3, 6, 8-14, 16, 19, 21, 24, 27-31, 33, 37-40, 42-46, 48, 51-52 are rejected under 35 U.S.C. 102(e) as being anticipated by Bharali et al. (US 6,216,163), herein after referred as Bharali.**

4.   As to claim 1, Bharali teaches a method for measuring bandwidth between two entities on a dynamic network, comprising:

via a dynamic network *(the Internet 131 of Fig. 1)*, receiving at least a pair of non-compressible packets *(back to back transmission of packets whose types are chosen to be non-compressible)*, having measurable characteristics *(small packets of 100 bytes and large packets of 700 bytes)*, the dynamic network being a communications network having no assurance that both packets or a pair of identical packets are handled in an identical manner while in transit on the communications network (Bharali, C8: L8-14);

calculating bandwidth based upon, measurable characteristics *(such as the relative timing of the receiving)* of at least the pair of non-compressible packets (Bharali, C8: L25-33 and C10: L23-33).

5.   As to claim 3, Bharali teaches the method of claim 1, wherein the packets are non-compressible packets. Examiner would like to note that entropy, in the information theory field, is defined as the randomness of data in a set, wherein the more random the data is the higher the entropy. Since data compression depends on patterns in data, higher randomness of data correlates to lower compression ratios. Therefore, it is inherent that non-compressible packets have a high measure of entropy.

6.   As to claim 6, Bharali teaches the method of claims 1 and 13, wherein a bandwidth (bw) is calculated by this formula: bw = PS / (t3 – t1) *(i.e., bottleneck throughput = length of the second packet * 8 / interpacket gap)* (Bharali, C10: L23-33).

7.   As to claims 8-10, Bharali teaches the method of claim 1, further comprising storing result of calculating bandwidth within a list of recent bandwidth measurements; finding a statistical derivation *(such as a median)* from such list representing a most likely bandwidth between the two entities (Bharali, C8:L37 – C9:L4).

8.   Claims 11-12 are corresponding program module and computer-readable medium claims of method claim 1; therefore, they are rejected under the same rationale.

9.   Claims 13-14 and 16 are corresponding method claims of method claims 1, 3 and 6; therefore, they are rejected under the same rationale.

10.   Claims 19 and 21 are corresponding method claims of method claims 1 and 3; therefore, they are rejected under the same rationale.

11.   As to claim 24, Bharali teaches the method of claim 19, wherein the packets of the pair are equivalent in size *(both packets of 1500 bytes)* (Bharali, C10: L23-26).

12.   As to claim 27, Bharali teaches the method of claim 19, further comprising selecting one of the pair of non-compressible packets from a set of different non-compressible packets *(among messages of 100 bytes, 700 bytes, or 1500 bytes)*.

13.   As to claim 28, Bharali teaches the method of claim 19, before sending, further comprising generating the pair of non-compressible packets *(inherently, the packets are generated before sent)*.

14.   Claim 29 is a corresponding computer-readable medium claim of method claim 19; therefore, it is rejected under the same rationale.

15.   Claims 30-31 and 33 are corresponding combination method claims of method claims 1 and 3; therefore, they are rejected under the same rationale.

16.   As to claims 37 and 39, Bharali teaches a method of approximating a bandwidth between the two entities on a network, comprising:

    generating a list of entries, each entry containing a recent bandwidth measurement *(a computed network congestion (or throughput) is stored for later comparison/computation)* (Bharali, C8:L48 – C9:L4);

each measurement being based upon a Packet-Pair bandwidth calculation of different pairs of non-compressible packets, in measurable characteristics *(using non-compressible packets of 100, 700, or 1500 bytes)* (Bharali, C8: L8-14 and L34-41).

17.   As to claim 38, Bharali teaches the method of claim 37, further comprising replacing a measurement in an entry with a most recently calculated measurement *(inherently, the stored historical levels may, for example, store a new minimum, maximum and average of the historical levels allowing improved comparisons with historical values)* (Bharali, C9: L1-4).

18.   Claim 40 is a corresponding method claim of method claim 3; therefore, it is rejected under the same rationale.

19.   Claims 42-45 are corresponding computer-readable medium claims of method claims 13, 30 and 37; therefore, they are rejected under the same rationale.

20.   Claims 46 and 48 are corresponding modulated data signal claims of method claims 1 and 3; therefore, they are rejected under the same rationale.

21.   Claims 51-52 are corresponding apparatus claims of method claims 1 and 30; therefore, they are rejected under the same rationale.

22.   As to claim 53, Bharali teaches the method of claim 1, wherein the dynamic

network is the Internet (the Internet 131 of Fig. 1).

23.   Claims 54-56 are corresponding method claims of method claim 53; therefore,

they are rejected under the same rationale.

Claim Rejections - 35 USC § 103

24.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

25.   Claims 2, 15, 20, 32, and 47 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Bharali, in view of Takagi et al. (US 6,272,148), herein after

referred as Takagi.

26.   As to claim 2, Bharali teaches the method of claim 1, but does not explicitly teach

each of the pair of non-compressible packets is approximately fragmentation-avoidance

size.

In a related art, Takagi teaches a network system that utilizes packets that are the maximum size they can be transferred without fragmentation (Takagi, C3: L9-18).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to make the packets the largest size possible while avoiding fragmentation as taught by Takagi in the invention disclosed by Bharali because it would avoid spending wasteful processing time and improve throughput, i.e., giving a better estimate of the actual bandwidth between two entities (Takagi, C3: L18-23).

27. Claims 15, 20, 32, and 47 are corresponding method and modulated data signal claims of method claim 2; therefore, they are rejected under the same rationale.

28.   Claims 4-5, 17-18, 22-23, 34-35 and 49-50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bharali, in view of Kikuchi et al. (US 6,614,763), herein after referred as Kikuchi.

29. As to claims 4-5, Bharali teaches the method of claim 1, but does not explicitly teach using either TCP or UDP formatted packets.

In a related art, Kikuchi teaches a bandwidth measurement system that utilizes UDP packets, but also may be used with any other appropriate type of packet (TCP) (Kikuchi, C20: L21-25).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use either UDP or any other packet format (TCP) as taught by Kikuchi in the invention of Bharali because both packet formats UDP and TCP are common packet formats in networks and should be used when determining the bandwidth of a connection that will later serve data formatted in those packet styles.

30.   Claims 17-18, 22-23, 34-35 and 49-50 are corresponding method and modulated data signal claims of method claims 4-5; therefore, they are rejected under the same rationale.

31.   Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bharali, in view of Nishigami (5,890,010), and further in view of Microsoft (White Paper: TAPI 3.0 Connection and Media Services).

32.   As to claim 7, Bharali teaches the method of claim 1, but does not explicitly teach verifying the result of a bandwidth outside an expected range by querying an entity's modem.

In a related art, Nishigami teaches that a data processing apparatus that verifies abnormal information/conditions (results) is known in prior arts (Nishigami, C1: L19-27). However, Nishigami does not explicitly teach querying a modem for bandwidth. In another related art, Microsoft teaches a service that can detect the capabilities (bandwidth) of a device on a line (TAPI) (page 5, Finding a Suitable Line).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to include verifying abnormal results as taught by Nishigami by querying a modem for its bandwidth as taught by Microsoft in the Bharali invention because, by verifying what appears to be abnormal bandwidth measurements, the accuracy of the data collected is kept in tact.

33.   **Claims 25-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bharali, in view of Linzer et al. (US 6,005,621), herein after referred as Linzer.**

34.   As to claims 25-26, Bharali teaches the method of claim 19, but does not explicitly teach sending a file or subfile formatted for the given calculated bandwidth.

In a related art, Linzer teaches a video server delivering high resolution video over high bandwidth connections and low resolution video over low bandwidth connections, wherein the differing resolutions videos (subfiles) are derived from the same video source (file) (Linzer, C7: L48-57).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to include choosing appropriately formatted files for a given bandwidth as taught by Linzer in the Bharali invention because a version of a file formatted for low bandwidth would be considered poor quality to users with high bandwidth connections (Linzer, C3: L1-15).

35.   Applicant's arguments as well as request for reconsideration filed on 10/07/2004

have been fully considered but they are moot in view of the new ground(s) of rejection.

36.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time

policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later

than SIX MONTHS from the mailing date of this final action.

37.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Quang N. Nguyen whose telephone number is (571) 272-3886.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's SPE, Rupal Dharia, can be reached at (571) 272-3880. The fax phone number for the organization is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RUPAL DHARIA
SUPERVISORY PATENT EXAMINER